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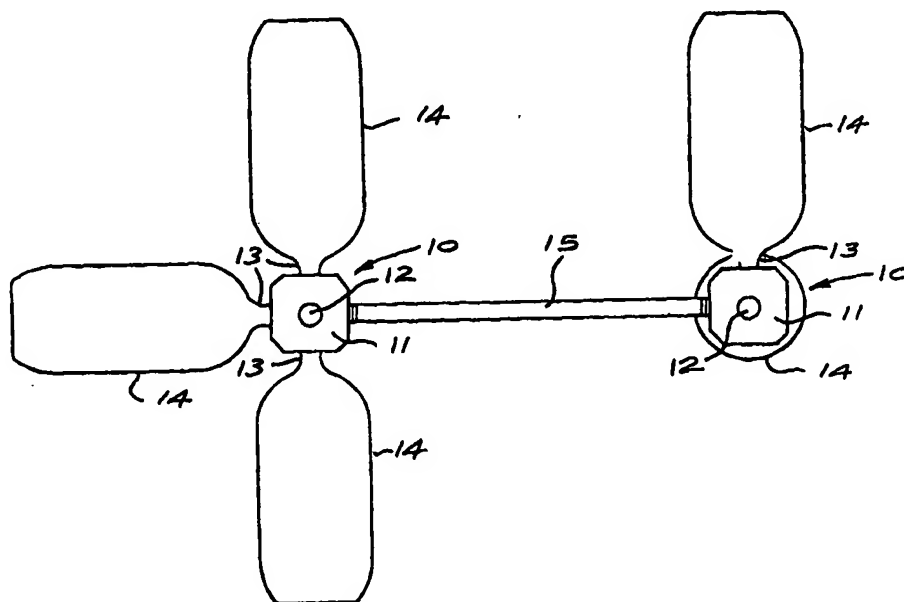
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<b>(51) International Patent Classification<sup>6</sup> :</b> <b>B65D 81/36, A63H 33/10</b>	<b>A1</b>	<b>(11) International Publication Number:</b> <b>WO 99/37558</b> <b>(43) International Publication Date:</b> 29 July 1999 (29.07.99)
<b>(21) International Application Number:</b> PCT/AP99/00002 <b>(22) International Filing Date:</b> 26 January 1999 (26.01.99) <b>(30) Priority Data:</b> 98/0600 26 January 1998 (26.01.98) ZA <b>(71) Applicant (for all designated States except US):</b> CHENGETA, Cuthbert [ZW/ZW]; Throgmorton House, 51 Samora Machel Avenue, Harare (ZW). <b>(71)(72) Applicant and Inventor:</b> THIXTON, Robert, Gary [ZA/ZA]; 43 Venus Street, Sharonlea, Randburg 2194, Gauteng (ZA). <b>(74) Agent:</b> HONEY & BLANCKENBERG; Patent Agents, Throgmorton House, P.O. Box 85, Harare (ZW).		<b>(81) Designated States:</b> AL, AM, AT, AT (Utility model), AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, CZ (Utility model), DE, DE (Utility model), DK, DK (Utility model), EE, EE (Utility model), ES, FI, FI (Utility model), GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SK (Utility model), SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG).  <b>Published</b> <i>With international search report. Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i>

(54) Title: A CONNECTOR



(57) Abstract

The present invention relates to a connector (1), for use in connecting a plurality of bottles. The connector has a body (2) having at least two receiving formations (3), each receiving formation shaped to retain, and conform to, part of a bottle neck. The invention also relates to a link (15) for use with the connector, a kit having at least the connector and at least one link, and a structure formed from a plurality of bottles retained in a connector.

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## **A CONNECTOR**

### **FIELD OF THE INVENTION**

This invention relates to a connector, more specifically, but not exclusively, to a connector for use with bottles.

### **BACKGROUND TO THE INVENTION**

5      Bottles are widely used for the storage of liquids and are commonly made from either glass or a plastics material, the latter finding increasing favour amongst manufacturers and consumers due to its light weight, durability and low cost. An ever-growing problem with bottles, especially bottles of a plastics material, is that they are intended to be discarded after their first use: this is not only wasteful, but also poses an environmental threat.

10      One of the factors contributing to this problem is that bottles generally only serve to store material and do not easily find secondary uses.

### **OBJECT OF THE INVENTION**

It is the object of this invention to provide a connector which will at least partially alleviate some of the abovementioned problems.

**SUMMARY OF THE INVENTION**

In accordance with this invention there is provided a connector comprising a body having at least two receiving formations, each receiving formation shaped to retain, and conform to, part of a bottle neck.

5 Further features of the invention provide for the receiving formations to be apertures, preferably in the form of sockets; for the sockets to be internally screw-threaded to receive a complementarily threaded bottle neck; and for the body to be substantially ridged.

10 Still further features of the invention provide for the body to have more than two receiving formations, preferably four to six receiving formations; for the receiving formations to be positioned in the body such that their respective axes intersect; for the receiving formations to be evenly spaced about the body; and for the body to be made of a plastics material.

15 The invention also provides a link for use with a connector as defined above, the link comprising an elongate body having at least two free ends, each end shaped to be retained in a receiving formation of a connector.

The invention further provides a kit comprising at least one connector and at least one link as defined above.

The invention yet further provides a structure formed from a plurality of bottles retained in at least one connector as defined above.

20 A further feature of the invention provides for there to be at least two connectors joined by a link as defined above.

**BRIEF DESCRIPTION OF THE DRAWINGS**

The invention will be described, by way of example only, with reference to the drawings in which:

25 Figure 1 is a perspective view of a first embodiment of a connector; and

Figure 2 is a side elevation of a structure formed by a second embodiment of a connector, a link and bottles.

### **DETAILED DESCRIPTION WITH REFERENCE TO THE DRAWINGS**

5 A connector (1) is shown in Figure 1 and has a part spherical body (2) with four sockets (3) (the fourth socket hidden from view) therein. The sockets (3) are evenly spaced within the body (2) and are formed so that their respective axes intersect at substantially the centre of the body (2). The sockets (3) are internally screw-threaded and the body (2) is moulded from a plastics material.

10 A second embodiment of a pair of connectors (10) is shown in Figure 2. In this embodiment, each connector (10) has a substantially cubic body (11) with a centrally positioned, normally extending socket (12) in each major surface thereof. Similarly to the embodiment in Figure 1, each socket (12) is internally screw threaded, the screw thread being complementary to that found on the neck portion (13) of a standard two litre plastics cooldrink bottle (14). This allows  
15 bottles (14) to be secured together by screwing the free end of the neck portion (13) of each bottle into a socket (12) on a connector (10). The structure so formed can be conveniently added to by the use of a link (15). In this embodiment, the link is a cross-sectionally circular rod, the free ends of which are screw-threaded to be retainable in a socket (12) on a connector (10).

20 Structures formed in this way have been found to be robust and highly buoyant thus providing a convenient toy for use in swimming pools. The use of connectors and links does however permit fairly large structures to be formed which can be used for play both on land and in the water.

25 It will further be appreciated that many other embodiments of a connector, link and structure exist which fall within the scope of the invention, especially as regards the configuration thereof. For example, the receiving formations in the connector need not be internally screw-threaded sockets but could be externally projecting tubes which provide a snap-fit over a bottle neck. Also, there could be any convenient number of receiving formations in a connector and these need not be symmetrically arranged thereon. The links need not be linear but could  
30 provide an elbow, a fork or could even be articulated and any suitable material can be used in the construction of the connectors and links.

**CLAIMS**

1. A connector comprising a body having at least two receiving formations, each receiving formation shaped to retain, and conform to, part of a bottle neck.
- 5 2. A connector as claimed in claim 1 in which the receiving formations are apertures.
3. A connector as claimed in claim 2 in which the receiving formations are in the form of sockets.
4. A connector as claimed in claim 3 in which the sockets are internally screw-threaded to receive a complementarily threaded bottle neck.
- 10 5. A connector as claimed in any one of the preceding claims in which the body is substantially ridged.
6. A connector as claimed in any one of the preceding claims in which the body has more than two receiving formations.
- 15 7. A connector as claimed in claim 6 in which the body has four to six receiving formations.
8. A connector as claimed in any one of the preceding claims in which the receiving formations are positioned in the body such that their respective axes intersect.
- 20 9. A connector as claimed in any one of the preceding claims in which the receiving formations are evenly spaced about the body.
10. A connector as claimed in any one of the preceding claims in which the body is made of a plastics material.
- 25 11. A link for use with a connector as claimed in any one of claims 1 to 10, the link comprising an elongate body having at least two free ends, each end shaped to be retained in a receiving formation of a connector.

12. A kit comprising at least one connector as claimed in claims 1 to 10 and at least one link as claimed in claim 11.
13. A structure formed from a plurality of bottles retained in at least one connector as claimed in any one of claims 1 to 10.
- 5 14. At least two connectors as claimed in any one of claims 1 to 10 joined by a link as claimed in claim 11.

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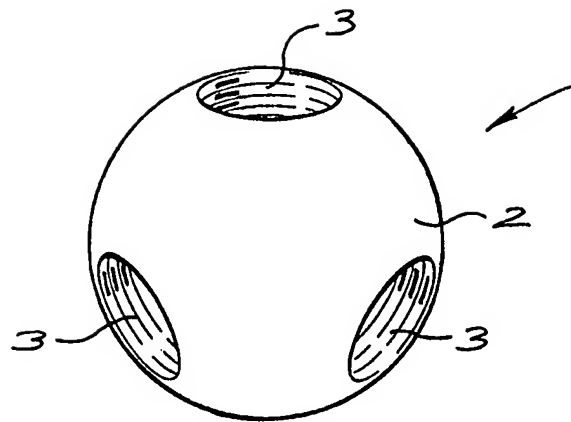


FIG. 1

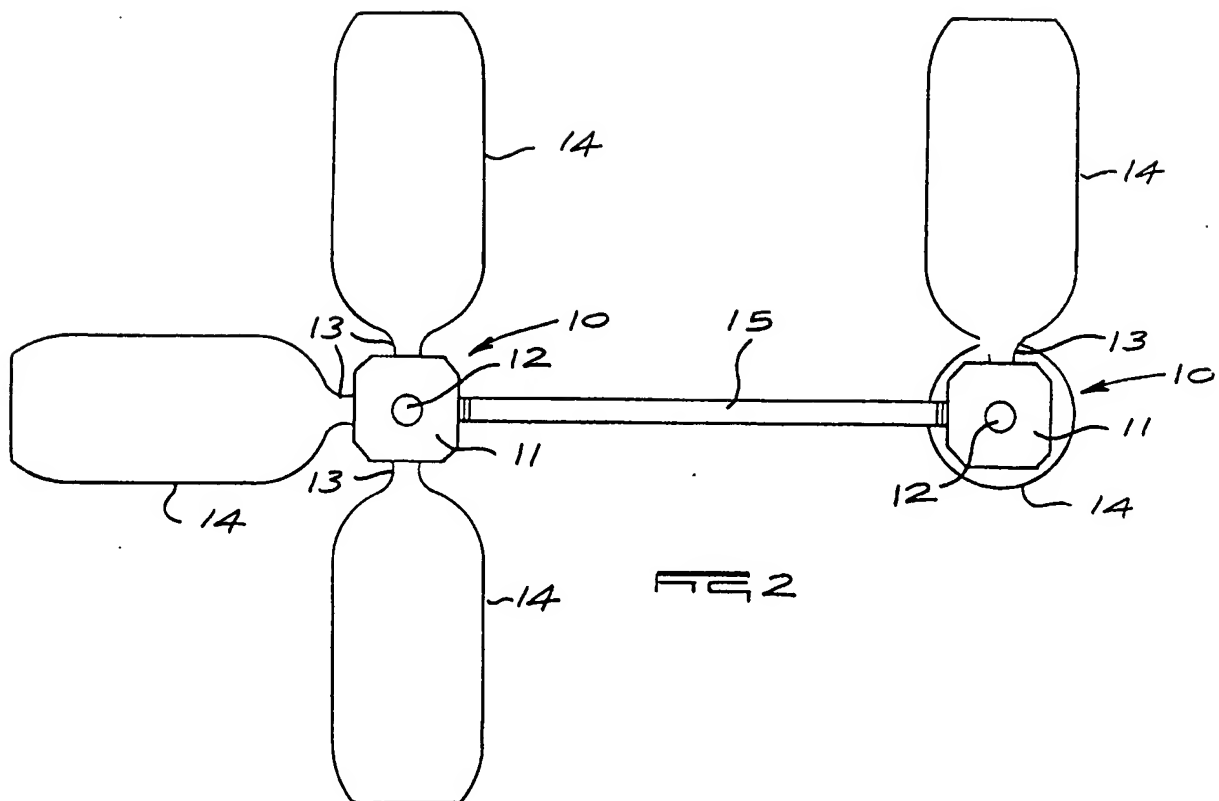


FIG. 2



# INTERNATIONAL SEARCH REPORT

International Application No  
PCT/AP 99/00002

## A. CLASSIFICATION OF SUBJECT MATTER

IPC 6 B65D81/36 A63H33/10

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC 6 B65D A63H

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 120 253 A (GELARDI) 9 June 1992	1-3, 5-10, 13
Y	see column 2, line 25 - column 4, line 46; figures 1-17	11, 12, 14
Y	US 5 282 767 A (GELARDI) 1 February 1994 see column 3, line 7-68; figures 1-9	11, 12, 14
A	FR 956 423 A (BOZINO) 1 February 1950 see page 1, line 21-42; figures 1-4	4, 11
A	US 3 640 018 A (LIGHT) 8 February 1972 see abstract; figures 1, 16	1, 12



Further documents are listed in the continuation of box C.



Patent family members are listed in annex.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 5120253	A	09-06-1992	NONE	
US 5282767	A	01-02-1994	NONE	
FR 956423	A	01-02-1950	NONE	
US 3640018	A	08-02-1972	NONE	